committee engaged in this work Prof. Rosa was the active head, and its successful issue was due in no small degree to his skill in overcoming the technical difficulties of the task and to his tact in dealing with the varied views of those engaged in the research.

The volume giving an account of these experiments, published by the Bureau of Standards in 1912, will form a fitting memorial of one who for the last twenty years devoted himself unweariedly to the advancement of electrical science. During the war he directed the development of a number of instruments of great use to the American forces in France. Among these may be mentioned a sound-ranging device and much radio apparatus suitable specially for aircraft. He was greatly instrumental in establishing the splendid radio laboratory at the bureau. Throughout his life he was keenly interested in the prevention of industrial accidents and in the provision of safety standards for the guidance of public authorities. The national electrical safety code at present in use in the United States owes much to him. His last work, now in the press, was an analysis of the expenditure of the Government Departments, which contains a number of statistics of great importance and interest.

Prof. Rosa was married in 1894, and Mrs. Rosa survives him; she has the deep sympathy of all those on this side of the Atlantic who knew her husband and appreciated his work.

MISS CZAPLICKA'S sudden death on May 20 cuts short a brilliant career. Having studied geography at Libau and Warsaw, she came with a research scholarship to this country in 1910, and soon after joined Somerville College, Oxford. She then turned her attention to anthropology, and, after taking the diploma in that subject, conceived the bold project of an expedition to the almost unknown part of the Siberian *tundra* lying between the Yenisei and Lena valleys—a project that was carried out with brilliant success in the years 1914–15. It was in keeping with her spirit of thoroughness, however, that by way of preparation she should first review the existing literature, mostly Russian, relating to this region, thus producing "Aboriginal Siberia" (Clarendon Press, 1914), a book not only full of out-of-the-way information, but likewise showing interpretative power of a high order. Her return from an adventurous journey involving great privations was marked by the appearance in 1916 of a popular work, "My Siberian Year"; but the full report by herself and her colleague, Mr. H. Hall, of the University of Pennsylvania, has not yet been published. At Oxford Miss Czaplicka acted as lecturer in ethnology until the end of the war, when she passed on to the University of Bristol to serve in a like capacity under Prof. Fawcett. In the meantime she found time to compose a valuable monograph on "The Turks of Central Asia," as well as to contribute many articles on the Siberian tribes to Hastings's "Dictionary of Religion and Ethics"—articles which might well be reprinted together in book-form. This brief account must suffice of the work of one whose intellectual energy was on a par with her personal charm and lofty spirit of self-devotion. Poland, so prolific of genius, can count her among its best. In Oxford, London, and Bristol alike she was the centre of a circle of admiring friends, whose lasting regret it now is that they did not somehow prevent the too courageous spirit from fatally overtaxing the delicate frame. R. R. M.

WE regret to announce the death, on May 31, of COL. JOHN HERSCHEL, R.E., retired, F.R.S., youngest son of the late Sir J. F. W. Herschel, Bart., in his eighty-fourth year.

Notes.

THE list of honours conferred on the occasion of the King's birthday includes the following names of men known to the world of science:—*Knights:* Prof. Arthur Keith, Hunterian professor and conservator of the Royal College of Surgeons; Dr. T. Lewis, hon. consulting physician since April, 1918, to the Ministry of Pensions; Dr. S. Russell-Wells, Vice-Chancellor of the University of London; Dr. F. Conway Dwyer, ex-president of the College of Surgeons, Ireland; Mr. J. B. Harrison, Director and Government Analyst, Department of Science and Agriculture, British Guiana; and Brig.-Gen. D. J. McGavin, Director-General of Medical Services in New Zealand. *C.B.:* Mr. Ll. S. Lloyd, Assistant Secretary to the Department of Scientific and Industrial Research. *K.C.I.E.:* Col. W. H. Willcox, late Medical Adviser to the Civil Administration in Mesopotamia. *C.I.E.:* Dr. M. N. Banerjee, Principal of Carmichael Medical College, Belgatchia, Bengal. *Companion Imperial Service Order:* Mr. G. J. Williams, Senior Inspector of Mines, Mines Department.

AN interesting ceremony took place at the Cosmos Club in Washington on Tuesday, May 10, when Mr. Henry S. Wellcome presented Dr. F. B. Power with a gold medal, specially struck to commemorate the latter's tenure of the directorship of the Wellcome Chemical Research Laboratories in London from their foundation in 1896 to 1914, when for family reasons he returned to the United States. During that period more than 170 papers were published from the laboratories, mostly in the Transactions of the Chemical Society. These papers deal chiefly with the constituents of plants, more especially with those plants used in medicine, and they form a notable contribution to our knowledge of the chemistry of drugs of vegetable origin. It will be remembered that in 1913 Dr. Power received the Hanbury medal, which is bestowed periodically by a joint committee of the Chemical, Linnean, and Pharmaceutical Societies in recognition of specially meritorious research on drugs.

A DISCOVERY in the Channel Islands of considerable interest to archæologists is announced in the *Times* of May 31. Mr. L. M'Lellan Mann, of Glasgow, has found on the surface of a rock at Green Island, Jersey, a series of shallow depressions or "cups." Similar cup-markings are found in Great Britain and on the Continent, and are widely distributed over other parts of the world, including India, Australia, and North America. Green Island, where these cups have been found, is an island at high tide only, and has been severed from the mainland in comparatively recent times. From previous discoveries it is known to have been the site of a Neolithic burial-place. This would be in agreement with the usual attribution of rock carvings, such as these in Jersey, to the Neolithic or early Bronze age. On the other hand, cup-marks with one or more concentric rings, which have a more restricted distribution and, with a few exceptions, are found only in the United Kingdom and Sweden, are usually more or less closely associated with remains of the Bronze age. It is stated that cup-markings have not hitherto been recorded from the Channel Islands. This, however, is an error. Sir J. Y. Simpson figured two cup-marked stones from Guernsey, one being the prop stone of a dolmen with eleven cups, the other a conical standing stone with three large cups placed at some distance apart (J. Y. Simpson, "Archaic Sculptures," Proc. Soc. Scot. Ant., 1864–65, plate viii., Figs. 2 and 3; see also C. Rau, "Observations on Cup-shaped and other Lapidarian Sculptures in the Old World," in "Contributions to North American Ethnology," vol. v., Washington, 1882, pp. 12–13). No cup-marked stones have, however, previously been recorded from Jersey.

THE Advisory Council for Scientific and Industrial Research has quite recently granted an application made to it to assist in carrying out a piece of research work relating to the determination of the parallaxes of stars having a certain type of spectrum. The grant has been made to Mr. W. B. Rimmer, who up to the present has been employed in spectroscopic researches at the Imperial College of Science and Technology under the direction of Prof. A. Fowler, but will now carry out this research at the Norman Lockyer Observatory at Salcombe Hill, Sidmouth. This observatory was founded by the late Sir Norman Lockyer in 1912, and the programme of work has been confined strictly to the photography of the spectra of stars and their subsequent classification according to his scheme of increasing and decreasing temperatures, which has been confirmed in its general features by the more recent work of Russell and Hertzsprung on giant and dwarf stars. The researches of Prof. W. S. Adams have now rendered it possible to differentiate almost at a glance between a giant and a dwarf star. As a large amount of spectroscopic material was available at the Norman Lockyer Observatory for the application of Adams's method a trial research was begun. The method is based on a connection found by Adams to exist between the true brightness of a star and the intensity of certain lines in its spectrum. These line-intensities were determined by him by estimation, the plates being examined under a spectro-comparator. At the Norman Lockyer Observatory the method employed is to cover the lines gradually with a dark wedge, the position of which when a line is obliterated indicates the intensity of the line. The results of this trial research have proved very satisfactory, and were commented upon very favourably by Prof. H. N. Russell on the occasion of a visit to the observatory. The above grant has been awarded to aid the extension of this research to all stars of suitable type down to declination −10° and of magnitude 6·5 and brighter. It is very opportune, for the staff of the observatory is small, and the work could not have been undertaken without such additional help.

THE annual visitation of the National Physical Laboratory, Teddington, will be held on Tuesday, June 28, from 3 to 6 p.m.

THE Safeguarding of Industries Bill was read a second time in the House of Commons on Tuesday, June 7.

THE annual conversazione of the Institution of Electrical Engineers will be held at the Natural History Museum, South Kensington, on Thursday, June 30, from 8.30 to 11 p.m.

AT the meeting of the Physical Society of London on June 10, to be held at the Imperial College of Science, South Kensington, S.W.7, Sir Ernest Rutherford will deliver a lecture entitled "The Stability of Atoms."

PROF. EINSTEIN was expected to arrive at Manchester yesterday, and will deliver the Adamson lecture on "Relativity" at the University at 5.0 this afternoon, June 9, when the honorary degree of Doctor of Science will be conferred upon him. He will leave Manchester for London to-morrow morning, June 10.

MR. CHURCHILL announced at Manchester on Tuesday, June 7, that the Government has decided to devote the sum of 1,000,000*l*. to fostering cotton-growing in the British Empire. The money will be placed at the disposal of the British Empire Cotton Growing Corporation, and will be in place of the Government's former promise of 50,000*l*. a year for five years to the corporation.

THE Hugo Müller lecture of the Chemical Society, entitled "The Natural Photosynthetic Processes on Land and in Sea and Air, and their Relation to the Origin and Preservation of Life upon the Earth," will be delivered by Prof. Benjamin Moore on June 16 at 8 p.m. in the lecture hall of the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1.

AT a general meeting of members of the Royal Institution held on June 6 special thanks were given to Sir Humphry Davy Rolleston for his present of a safety-lamp which was in the possession of Dr. John Davy, brother of Sir Humphry Davy, and to Sir David L. Salomons for his present of a privately printed Life and Study of the Works of Breguet, the famous watchmaker, Arago's watch, and two others of special interest, the first working aneroid made by Vidi in 1857, and a series of models illustrating the development of the chick.

It is proposed to hold an additional ordinary meeting of the Royal Meteorological Society for the reading and discussion of papers in Edinburgh on September 7. The British Association will be in session in Edinburgh on September 7–14, and arrangements are being made to hold the society's meeting, probably in the afternoon, immediately before the work of the Association begins. The possibility of a "meteorological luncheon" and of an excursion of special meteorological interest is also under consideration.

The Newcomen Society for the Study of the History of Engineering and Technology is one of our younger societies, having been founded only a year ago. The titular name adopted by the society is that of the eighteenth-century engineer to whose labours we owe the steam-engine as we know it to-day. The subject which the society takes for its field is one which has been too much neglected in the past, perhaps more so in this country than elsewhere, in spite of the fact that England has been the cradle of so many leading inventions. To some extent this indifference is caused by the fact that the materials needed by the historian in this branch of human endeavour are all too scanty, and it is the aim of the society to help in supplying this deficiency. Besides holding meetings, the society intends to help in the preservation of records, MSS., and drawings of engineering work, as well as of biographical matter concerning those who have been prominent in such work. It is also intended to publish at the end of each session a yearbook containing original papers and historical matter not readily accessible. The summer meeting will be held in Birmingham on June 16–17 (headquarters, Queen's College, Paradise Street), under the presidency of Mr. A. Titley, and visits to places of interest are arranged for both days. On the first day the president will give his address, and Mr. A. Seymour-Jones will read a paper on "The Invention of Roller Spinning." This is appropriate in view of the little-known fact that the first attempts in this direction were made in Birmingham. The hon. secretary of the society is Mr. H. W. Dickinson, and communications should be addressed to him at the Science Museum, South Kensington, S.W.7.

The thirty-second congress and health exhibition of the Royal Sanitary Institute will be held on June 20–25 at Folkestone under the presidency of the Earl of Radnor. Some five hundred delegates have already been appointed to attend the meeting, representing Government Departments interested and health authorities of the British Isles, as well as delegates from Australia, New Zealand, Canada, France, and Denmark. The congress will be divided into five sections:—Section A (president, Sir Leslie Mackenzie) will deal with sanitary science and preventive medicine; Section B (president, Major W. H. Prescott) with engineering and architecture; Section C (president, Mrs. H. A. L. Fisher) with the hygiene of maternity and child welfare; Section D (president, Mrs. R. G. Wood) with personal and domestic hygiene; and Section E (president, Viscount Burnham) with industrial hygiene. Conferences have been arranged for medical officers of health, sanitary authorities, engineers and surveyors, veterinary inspectors, sanitary inspectors, health visitors, and rat officers. A long list of subjects for discussion has been published, among which are such important topics as the control of developmental and wasting diseases, the relation of hospitals to preventive medicine, tuberculosis, industrial fatigue and welfare, the prevention and destruction of rats, and smoke abatement. A popular lecture on June 23 by Prof. E. Mellanby on "Vitamins and their Relation to Health" has been arranged, and excursions will be made to places of interest in the neighbourhood of Folkestone. June 25 will be devoted to a whole-day visit to Boulogne, during which the members of the various sections will be conducted over appropriate institutes in the town. Further information on local arrangements can be obtained from the Secretary, the Royal Sanitary Institute, 90 Buckingham Palace Road, S.W.1.

Dr. Capitan and M. Peyrony have contributed to the *Revue Anthropologique* a *résumé* of the works of art which they have discovered at La Ferrassie. The specimens are now deposited in the museum of the Château des Eyzies. The engravings, etc., belong to an early phase of the Aurignacian period, and are among the most ancient works of art known to exist. One of the earliest, which the explorers themselves unearthed, is a human figure from which the head and limbs are absent and only the trunk remains. This is rudely shaped and by no means beautiful; it is not steatopygous. Deeply outlined carvings of horses' heads and deer's heads were found on rocks. All the figures are exceedingly rude. One stone is occupied with cup markings in concentric circles, and cups appear mingled with other designs. Two complete figures of deer in outline, coloured red and black respectively, were found. Another figure represents the head of a rhinoceros, but only one engraved human figure appears. The authors note that all the engraved figures were placed face downwards, except in one case which could not be so treated; this had been designedly mutilated. They hold that these rudimentary, yet already complicated, images are the earliest known artistic manifestations and are ritual representations of magical practices.

Miss Nina F. Layard has published an interesting account of her discovery of mammalian remains with Mousterian flint-implements in a Pleistocene clay in the Stoke railway cutting at Ipswich (Proc. Prehistoric Soc. East Anglia, vol. iii., part ii.). Besides well-preserved teeth and bones of the mammoth, horse, large ox, and red deer, there are remains of three individuals of a large lion and fragments of a large bear. There are no traces of the reindeer. Close to the crushed skull of a mammoth were found some characteristic pieces of the shell of the small freshwater tortoise, *Emys orbicularis*, which had not previously been observed in late Pleistocene deposits in England. Miss Layard desires to mention that all the fossils were named in the geological department of the British Museum (Natural History)

THE greater part of the skull and neck, with a nearly complete shoulder-girdle, of a new Plesiosaurian from the Wealden of Berwick, Sussex, has just been added to the exhibited series of fossil marine reptiles in the geological department of the British Museum (Natural History). The specimen was found in a hard nodule in the pit of the Cuckmere Brick and Tile Co., and was presented to the museum by the managing director, Mr. Stanley Tooth. It represents a small reptile, about 6 ft. in length, and is of great interest as probably being a freshwater species. Just as among existing Cetacea the river-dolphins are generally smaller than the marine porpoises, so among the extinct Plesiosauria the freshwater forms may have been smaller than those living in the sea. In the structure of its shoulder-girdle the new species resembles the early Jurassic Plesiosaurs more closely than those of later Jurassic times. It, therefore, seems to have been an out-of-date survivor preserved by such an isolated mode of life as a freshwater habit would allow. The shoulder-girdle is uncrushed, retaining its original shape, and showing that the reptile was round-bodied, not depressed like a turtle.

THE Rhodesia Museum, Bulawayo, being in urgent need of a new exhibition gallery, has been promised 1000*l*. by the Rhodes Trustees, and Sir Otto Beit has promised 250*l*., provided the sum of 750*l*. be subscribed by the public. By the end of 1920 486*l*. had been subscribed, and the museum committee now appeals for further donations.

WE are glad to see that the *Museums Journal* is not fulfilling its threat to appear only quarterly instead of monthly, though it has overcome a temporary difficulty by an April–May number. In this Dr. Hecht, of the Nancy museum, makes some suggestions for co-operation between French and British curators, which should bear fruit when the Museums Association meets in Paris next month. One is that examples of the rings attached to migrating birds should be shown in the museums of the Continent, so that visitors to them may become aware of their meaning.

THE report of the South African Museum for 1920 records the death of the old Seychelles tortoise known as "Peter." It proved to be a female. So long ago as 1834 she had reached a gigantic size, but how old she then was is not known. One of the Cape tortoises belonging to the museum had reached a great size in 1843, and still fulfils the objects of her sex. Among much other interesting matter in this report, Dr. Peringuey adduces fresh evidence that the stone querns of the Bushmen were not for grain, but were grinding mills for crushing ore. The craft of these African smiths, however, never enabled them to make so much as an iron hammer or to dispense with the use of stone implements.

THE Journal of the Royal Society of Arts for May 13 contains a paper by Sir James Cantlie describing Thomson's machine for armless men in whom the amputations are so high that it is impossible to fit artificial limbs. The apparatus consists of a table under which are pegs which are worked by the toes. These actuate rods and levers which communicate movements to rods above the table, which constitute artificial "arms" by means of which all kinds of instruments may be grasped and worked. The patient is thus able to use a spoon, knife, and fork, drink from a cup, pick up a cigarette from the table, place it in his mouth, open an ordinary box of matches, strike a match, and light the cigarette, write with pen or pencil, typewrite, turn over the leaves of a book, play draughts, wash and dry his face and neck, etc. The condition of the armless is indeed pitiable, and the inventor deserves the greatest commendation for the design and construction of this ingenious machine.

IN the Gardens' Bulletin, Straits Settlements (vol. ii., Nos. 9–11, 1921), Mr. T. F. Chipp publishes a list of the fungi of the Malay Peninsula, which it is hoped may facilitate the work of mycologists engaged on the study of plant diseases and lead to a more detailed systematic study of Malayan fungi.

SEVERAL papers dealing with the fungus flora of South Africa appear in the Transactions of the Royal Society of South Africa (vol. viii., part 4, 1920, and vol. ix., part 2, 1921). Miss Ethel Doidge contributes a revision of the native species of a family of moulds (Microthyriaceæ) which are abundant on the leaves of plants in humid wooded districts. Descriptions, and in many cases figures, are given of the species, a large proportion of which are new to science. In a second paper Miss Doidge describes in detail the method of attack and nutrition of the tropical genus Meliola, which occurs on shoots and leaves of forest trees and shrubs. The fungus is shown to be a true parasite, sending penetrating suckers through the epidermis of the host, blocking up the stomata, and causing considerable disorganisation of the cells. Mr. Paul van der Bijl describes for the first time a fungus (*Ovulariopsis papayae*) which attacks the pawpaw plant along the coast of Natal, forming a powdery covering on the under-face of the leaves.

THE Liverpool Geological Society has done well in publishing in its Proceedings (vol. xiii., part i., 1920) a translation, somewhat abbreviated, of Dr. A. Heim's paper "The Weight of Mountains." The original appeared in the Annual of the Swiss Alpine Club for 1918, and the illustrations are now reproduced. The map shows the variation of gravity throughout Switzerland from what is regarded as the normal value, and is based on results recently obtained with the seconds pendulum for a large number of localities. The measurements are recorded as if values below the normal were due to an excessive thickness of rock underlying the station with a specific gravity of 2·4, and curves are drawn representing these thicknesses at 100-metre intervals. Lines of normal gravity-effect (0) occur on the south side of the Black Forest and north of the Lago Maggiore. Between these regions the lines are approximately parallel with the strike of the Alpine folding, and the gravity-defect runs up to –1600 in the Engadine and to –1450 on the southern flank of the Rhône Valley near Visp. Dr. Heim regards the Alpine mass as floating, partially submerged, in a plastic "sima" underlayer, into which it has sunk back to some extent since its maximum elevation in late Miocene times. There is thus beneath its surface a region of mass-defect, a "gravity-synclinal." The sheets of detritus from the early chain now dip towards their source, and the author once more urges that the lakes penetrating the foothills on either side are due to a reversal of the slope of primary valley floors. The paper thus presented to English readers is a clear and valuable addition to the literature of isostasy.

In the *Meteorological Magazine* for April a summary is given of the rainfall of San Domingo, dealing chiefly with the eastern half of the island. Meteorological data from the Dominican Republic are said to be extremely rare; the rainfall records discussed have been received by the Meteorological Office, and are roughly summarised by Mr. C. E. P. Brooks. The observations were forwarded by Mr. W. A. Elders, the general manager of the Samana and Santiago Railway, who since 1913 has had twelve rain-gauges installed. A map is given showing the annual average results for the twelve stations, which are situated along the valley of the Yuna River and its tributaries. Detailed monthly averages are given for Sanchez, on the border of Samana Bay, at the eastern extremity of the island, and for La Vega, situated near the centre of the island, about sixty miles westward from Sanchez. Results for Port au Prince, in the west of the island, are added for comparison. Over the eastern half of the island the heaviest rain occurs from May to August, and there is a subsidiary maximum in November. The driest months are from December to March. There is a considerable range in the annual rainfall. At Sanchez the average for the year is 71·09 in., ranging from 56·00 in. in 1918 to 81·52 in. in 1913; whilst at La Vega the average annual fall is 67·58 in., ranging from 41·28 in. in 1920 to 100·85 in. in 1917. The prevailing wind is from the east, distinctly a trade wind, trending somewhat from the south-east in the summer months and from the north-east in the winter months. The country is mountainous, but very fertile in the valleys.

At the April meeting of the Optical Society Mr. F. Twyman described an instrument for testing camera lenses. The method depends on interference, and permits of the measurement, in wave-lengths of the light used, of the deviation from sphericity of the whole of the wave-surface transmitted by a lens from a point source behind it. This is secured by mounting the lens under test so that it can be rotated about a line at right angles to its axis passing through its second principal point. The apparatus brings the beam which has traversed the lens into interference with one which has travelled a fixed distance, as in the case of a Michelson interferometer. The isochromatic lines of the interference pattern then correspond to equal deviations from sphericity of the transmitted wave surface. The instrument affords a most severe test, and defects of lenses by first-class makers have been found by its means.

The report of the council presented at the annual meeting of the Illuminating Engineering Society on May 31 contains evidence of further useful work, new joint committees in co-operation with various other bodies having been formed to study special problems arising from recent discussions. Amongst the subjects thus dealt with are photometry, motor-headlights, and the lighting of kinema studios. It is also remarked as gratifying that international co-operation in connection with illumination is being resumed. A session of the International Illumination Commission, the first since the outbreak of war, is being held in Paris in July, and such questions as motor-headlights, "artificial daylight," and regulations for industrial lighting will be discussed. Following the formal business at the annual meeting Mr. J. S. Dow read a paper on "The Use of Artificial Light as an Aid to various Games and Sports." An account of the lighting of various covered tennis courts was given, and it was suggested that even the artificial illumination of football and cricket grounds and golf links, though admittedly presenting considerable difficulties, might be accomplished in the future.

We have received from Messrs. C. Baker, High Holborn, a descriptive pamphlet of a universal geometric slide photomicrographic apparatus made by them from the design of Mr. J. E. Barnard and originally described by him in 1911. The base is designed on the girder principle to obtain rigidity, and the portion carrying the microscope is constructed to swing out so that the object may be searched. The camera, a half-plate one, has a 3-ft. extension. The upper surface of the base carries two parallel metal rods, and the camera slides on these by two **V**-grooves on one and a plane surface on the other, the latter being intermediate in position between the **V**-grooves. The principle of the geometric slide is thus obtained, the apparatus being supported practically on three points forming the apices of a triangle, while alignment is maintained by the **V**-grooves. It may be clamped down in any position, and by means of a spindle running in bearings along the centre of the casting, which actuates a pulley "belted" to the fine adjustment with a thin cord, focussing may be carried out at any position. All subsidiary apparatus, including the illuminant, is similarly carried on geometric slides. The price of the apparatus is 33*l*., or with arc lamp and some subsidiary apparatus about 40*l*.

The April issue of the *Whitehall Gazette* contains an interesting article on the fraudulent proceedings that were practised to avoid service when conscription was in force in this country. Some claimed exemption on the ground that they were suffering from consumption, but declined to provide sputum there and then, promising to send samples. The samples forwarded did contain tubercle bacilli, but they were dead, and the specimens were found to be artificial concoctions. A good many forged passports were produced by Russians who remained in this country. In some cases a passport belonging to another would have the written details bleached out by chemical means and the desired name, etc., inserted. Sometimes the date of birth of the man's own passport might be put back ten years. These forgeries were detected by the change in reflecting power of the surface of the paper caused by the removal of the size by the bleaching agent or by the attempt to replace it, by the spreading of the ink caused by the removal of the size, by the restoration to visibility by chemical means of the bleached-out writings, by the finding of the bleached inscriptions by photography under suitably coloured lights, and so on. The article is illustrated with excellent photographs and reproductions of photographs.

On May 10, at the Institute of Petroleum Technologists, Prof. P. Carmody (late Government analyst, Trinidad) read a paper on "Trinidad as a Key to the Origin of Petroleum." Prior to the meeting the title of the paper had created much interest and curiosity, especially among those members who have had professional experience in the island, but unfortunately both the paper and subsequent discussion were scientifically somewhat disappointing. The author's main contention was that in a comparatively small area, within reasonable access of Europe, and under conditions of life peculiarly satisfactory for a tropical island, there exist all the requisite natural factors for an exhaustive research into the origin of petroleum, as yet a little understood problem, the solution of which must perforce have far-reaching scientific and economic results. The natural factors referred to include the occurrence of varied forms of solid, liquid, and gaseous hydrocarbon compounds within the rocks of the island, and in illustration of his idea the author gave a brief description of these, supplemented with a large number of chemical and physical data obtained during the course of some thirty years' work in the Government laboratory. There is obvious value in the publication of such data by one whose long experience entitles him to speak with authority, but the *raison d'être* of the paper suffered much from the somewhat narrow view taken as to the origin of oil, viz. its derivation entirely from vegetable matter, *i.e.* cellulose. On this assumption, and in view of the many known oil occurrences wherein marine organisms have unquestionably been involved, it is doubtful whether Trinidad does indeed constitute the desired "key," and whether, as the president remarked later, the existence of all these forms of petroleum is not a disadvantage rather than an aid to the solution of the problem.

Prof. R. S. Troup, of the forestry department of the University of Oxford, has written for publication by the Oxford University Press a work in three volumes on "The Silviculture of Indian Trees." The first volume, dealing with Dilleniaceæ to Leguminosæ—Papilionaceæ, is promised for appearance by an early date.

A full report of the meeting held on May 30 by the National Union of Scientific Workers on "The Administration of Scientific Work," of which a short account was given in last week's Nature, p. 439, will appear in the next issue of the union's Journal. Copies may be obtained from the Secretary, N.U.S.W., 25 Victoria Street, S.W.1, at the end of this month (post free 6*d.*).

Our Astronomical Column.

Comets.—Reid's comet is rapidly fading, but should be within reach of moderate instruments for another month. An extension of the ephemeris from Ebell's elements for Greenwich midnight is therefore given:

		R.A. h. m. s.	N. Decl. ° ′			R.A. h. m. s.	N. Decl. ° ′
June	9	8 8 33	51 38	June	29	8 17 41	43 31
	13	8 10 41	49 35	July	3	8 19 16	42 21
	17	8 12 37	47 48		7	8 20 49	41 18
	21	8 14 24	46 13		11	8 22 19	40 19
	25	8 16 3	44 48		15	8 23 46	39 24

Values of log *r*, log Δ: June 13, 0·0665, 0·2311; June 25, 0·1054, 0·3035; July 7, 0·1459, 0·3543.

The following observation of Pons-Winnecke's comet was obtained at Greenwich: G.M.T. June 2d. 10h. 57m. 38s.; apparent right ascension, 20h. 37m. 15·85s.; apparent north declination, 37° 12′ 45·8″. The position deduced from Crawford and Levy's second elements is right ascension 20h. 38m., 5s., north declination 37° 3′. The elements are therefore fairly near the truth.

The comet now appears large and diffused owing to its small distance from the earth. It will be nearest to both earth and sun on June 12.

Mr. G. Merton obtained an observation of Dubiago's comet on June 1. He states that its position agreed closely with the ephemeris given in Nature of May 26.

Nova Cygni III. (1920).—Mr. Denning writes that he observed this object on June 5 at 10h. 40m. G.M.T. with a 6½-in. refractor. He estimated the magnitude to be 9·6, so that the star's light would appear to have declined very slightly during the last 7½ months. It will be remembered that the magnitude of the star decreased from 1·8 to 8·5 during the days from August 24 to October 6, 1920, so that the average decline of light was 0·16 per day. Since about the middle of October, however, the nova appears to have maintained its brightness in a rather unexpected way.

Collision of Star and Nebula.—Prof. Ernest W. Brown contributes a paper on this subject to the April issue of the *Astrophysical Journal.* Taking the star as origin and the line of relative motion as the Z-axis, particles of the nebula equidistant from this axis would all be deflected into similar hyperbolic orbits meeting in a point on the axis. There would thus be numerous collisions of particles along the axis which would generate a fan-shaped nebula with its apex towards the star. Another nebulous envelope surrounding the star would be formed by collisions of particles with the star or its appendages. The nebula is supposed to be non-gaseous at the start, being composed of widely scattered particles.

Hubble's variable nebula round the star R Monocerotis is discussed in detail, and it is shown that its form agrees closely with that indicated by the theory. It is suggested that the variations in the light of the fan-shaped appendage may arise from irregularities in the density of the nebula that the star is supposed to be traversing. It is shown that Prof. Slipher's observation that the stellar envelope and the fan-shaped appendage have identical spectra is in accord with the hypothesis, for both would arise from the gas resulting from collisions of the nebular particles. Slipher and Lampland's further statement that the spectra resemble those of novæ in their early stages suggests to Prof. Brown that a similar explanation may be available for the phenomena of novæ.